Remarks

Applicants are submitting this preliminary amendment to accompany the application filed herewith to further prosecute those claims that were pending in the previously filed parent application, Serial No. 09/546,891, filed April 10, 2000. Payment in the amount of $850.00 is enclosed for the required filing fee under 37 C.F.R. §1.16 and extension of time under 37 C.F.R. § 1.17. A petition for a one-month extension of time is also requested.

Claims 1-9 were originally filed in the parent application. New claims 10-14 have been added, which are dependent claims depending from the two independent claims 1 or 8.

Certain amendments to the claims and specification have been made to correct certain informalities and to remove certain objectionable matter previously noted by the Examiner in the parent case. It is believed that these changes, which are consistent with those previously made, should be acceptable for the same reasons given during the prosecution of the parent case.

Applicants submit that the amended claims as they are now presented, are allowable over the cited art. The amendments made are fully supported by the specification. Favorable action is therefore respectfully requested.

If any additional fees are deemed necessary to further the prosecution of this case, the Commissioner is hereby authorized to charge them to Deposit Account No. 50-1899.

All future correspondence with respect to the above-referenced application should be addressed to:

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EXHIBIT A

Replacement paragraph spanning pages 5 and 6:

The present invention discloses a thermoplastic composition containing a polymer of a monovinylaromatic compound which has been modified with an elastomer to increase its impact strength and environmental stress crack resistance, which compound is obtained by polymerizing the monovinylaromatic material in the presence of a combination of polymerization initiators and the elastomer. In the composition, the portion of the soft component in the polymer, which has been modified to increase its impact strength, is less than 28% by weight based on the polymer, the soft component being defined as the toluene-insoluble constituent of the polymer which has been modified to increase its impact strength, minus any pigment which may be present. The particular rubber utilized in the present invention could be one of several types, for example the type sold by Firestone and designated [at] as Diene 55 having a Mooney viscosity of approximately 55, a number molecular weight of about 150,000, weight average molecular weight of about 300,000, and a Z molecular weight of about 500,000 as measured by the gel permeation technique. Another type of advantageous rubber material includes the high-Cis rubbers.

Replacement paragraph spanning pages 6 and 7:

Suitable monovinylaromatic compounds utilizing the present invention include styrene as well as styrenes alkylated in the nucleus or side-chain as alphamethyl styrene and vinyltoluene. The monovinylaromatic compounds may be employed singly or as mixtures. In one preferred embodiment, styrene was the monovinylaromatic compound of preference. The high impact polystyrene (HIPS) manufactured according to the present invention is formed by polymerizing the monovinylaromatic compound in the presence of the rubber and a novel combination of initiators which include a combination of perketals and

peroxycarbonates. The level of rubber utilized is preferably in the range of about 5-15% by weight of the solution. The polymerization is carried out in a conventional manner by mass polymerization, solution polymerization,[,] or polymerization in aqueous dispersion, the rubber first being dissolved in the polymerizable monomer and this solution then being subjected to polymerization in the presence of the initiator combination. A suitable peroxycarbonate polymerization initiator would include for example, t-Amyl 2-Ethylhexyl peroxycarbonate [--t-Amyl 2-Ethylhexyl peroxycarbonate] (TAEC) and a suitable perketal initiator would be ethyl-3,3-di (t-butyl peroxy)-butyrate, such as that sold by Elf Atochem North America, 2000 Market St., Philadelphia, P.A. and designated commercially as LUPERSOL 233. When using solution polymerization, the starting solution may be mixed with up to about ten percent (10%) by weight, based on the monovinylaromatic compound employed, of an inert diluent. Preferred inert diluents include aromatic hydrocarbons or mixtures of aromatic hydrocarbons such as toluene, ethylbenzene, xylenes, or mixtures of these compounds. Suitable chain transfer agents, e.g., mercaptans or alphamethyl styrene dimer, may also be added to control polymer molecular weight and rubber particle size. Additionally, lubricants, such as mineral oil and polyisobutylene, may also be added.

Table I ESCR Improvement				
	A	**B**	**C**	**D**
PPM Initiator #1	400	400		
PPM Initiator #2			400	400
PPM Initiator #3	200	200	200	200
PPM Chain Transfer Agent	500	500	500	500
Mineral Oil %	2	2	2	2
PIB %	2	2	2	2
Span Measure of R.P. Size Distribution	1.8	1.6	1.0	1.4
R.P.S. (microns)	6.1	5.8	4.2	5.0
% Rubber	11.4	12.0	11.5	11.5
Swell [SWCU] Index	12.2	12.1	12.8	13.0
Gels %	23.3	24.8	24.5	22.8
Grafting	104	107	113	99
% Toughness Retained ESCR	22.5	22.8	36.8	44.3
[% Toughness Retained 1 cn mod.] Tensile Modulus	228,300	214,300	210,900	221,900

Table II		
	A	**B**
PPM Initiator L-331	400	
PPM Initiator TAEC		600
PPM Initiator L-233	200	200
PPM Chain transfer agent	200	--
% m.o.	2	2
% PIB	--	--
Span RPS Distributors	2.0	1.5
Micron RPS	3.3	3.6
% Rubber	4.2	4.4
Swell Index [S.J.]	10.7	10.8
Gels	9.7	12.5
Grafting	130	184
Tensile Mod.	339,500	332,300

EXHIBIT B

1. (Amended) A method for preparing a [improving the environmental stress crack resistance of an elastomer-modified] monovinylaromatic polymer material, comprising:

introducing a monovinylaromatic monomer feed stream into a polymerization reactor;

introducing an elastomer feed stream into said polymerization reactor;

introducing a polymerization initiator compound into said reactor, said initiator compound comprising at least one perketal and at least one peroxycarbonate in an amount of from about 150 ppm to about 800 ppm by weight; and

reacting said monomer, said initiator compound, and elastomer to form an elastomer-modified monovinylaromatic polymer having an elastomeric component of less than 28% by weight of polymer and that has a toughness retained of at least 30% [having high ESCR value].

3. (Amended) The method of claim 1 wherein said perketal comprises ethyl-3,3-di (t-butyl peroxy)-butyrate [Lupersol L-231] and said peroxycarbonate comprises t-Amyl 2-Ethylhexyl peroxycarbonate.

4. (Amended) The method of claim 3 wherein [said perketal is added in amounts of about 200 PPM by weight and] said peroxycarbonate is added in amounts of from about 400 PPM to about 800 PPM by weight.

6. (Amended) The method of claim 5, wherein said chain transfer agent is a mercaptan[, and is added in amounts of around 500 ppm, by weight].

8. (Amended) A process for producing [cupgrade] high impact polystyrene [having improved gel content and grafting levels with reduced elastomer contents, aid process] comprising:

introducing a styrene monomer feed stream into a polymerization reactor;

introducing an [a reduced-level] elastomer feedstream in an amount of from 5 to 15% by weight into said reactor along with said styrene monomer feed;

introducing an initiator compound into said reactor, said compound comprising at least one perketal initiator and at least one peroxy-carbonate initiator in an amount of from 150 ppm to about 800 ppm by weight; and

reacting said feedstreams and initiator compound to produce impact resistant polystyrene.

9. (Amended) The process of claim 8 wherein said perketal is ethyl-3,3-di (t-butyl peroxy)-butyrate [Lupersol L-233 added in the amounts of about 200 PPM, by weights], and said peroxycarbonate is TAEC [in amounts of about 600 PPM, by weight].

10. (New) An elastomer-modified monovinylaromatic polymer prepared in accordance with the method of claim 1.

11. (New) A high impact polystyrene prepared in accordance with the method of claim 8.

12. (New) The process of claim 1, wherein the monovinylaromatic monomer is styrene.

13. (New) The process of claim 8 wherein the impact resistant polystyrene has a gel content of greater than about 10% by weight.

14. (New) The process of claim 8 wherein the impact resistant polystyrene has a grafting level of greater than 130.